

WHAT IS CLAIMED IS

1. A method for manufacturing a semiconductor device having a gate electrode comprising the steps of:

- 5 forming a gate insulating film on a substrate;
 forming an electrode-constituting film for constituting the gate electrode on the gate insulating film,
 forming a silicon nitride film on the electrode-constituting film;
10 forming a mask film on the silicon nitride film;
 forming a resist pattern on the mask film;
 patterning the mask film using the resist pattern as a mask;
 patterning the silicon nitride film and the electrode-constituting film by dry etching using a patterned mask
15 film as a mask; and
 removing the mask film by CMP using the silicon nitride film as a stopper film after patterning the electrode-constituting film.

2. The method for manufacturing a semiconductor device
20 according to claim 1 further comprising the steps of:

- forming an interlayer insulating film after patterning the electrode-constituting film;
 forming contact holes in the interlayer insulating film; and
 forming a conductive film on the entire surface of the substrate
25 including in the contact holes,
 wherein contact plugs are formed in the interlayer insulating film, and the mask film is simultaneously removed in said step of removing the mask film by CMP using the silicon nitride film as a stopper film.

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3. The method for manufacturing a semiconductor device according to claim 2, wherein the material of the mask film is the same as the material of the contact plugs.

5 4. The method for manufacturing a semiconductor device according to claim 1, further comprising the step of forming wirings on the silicon nitride film after removing the mask film.

10 5. A method for manufacturing a semiconductor device having a gate electrode comprising the steps of:

forming a gate insulating film on a substrate;

forming an electrode-constituting film for constituting the gate electrode on the gate insulating film;

15 forming a silicon nitride film on the electrode-constituting film;

forming a mask film using the same material as the material of the electrode-constituting film on the silicon nitride film;

forming a resist pattern on the mask film;

20 patterning the mask film using the resist pattern as a mask; and

patterning the silicon nitride film and the electrode-constituting film, and simultaneously removing the mask film, by dry etching using a patterned mask film as a mask.

25 6. The method for manufacturing a semiconductor device according to claim 5, further comprising a step for forming wirings on the patterned silicon nitride film.